SIMPLE INTEREST

17
CHAPTER

EXERCISE

YEAR : 1999

1. What sum of money must be given at simple interest for six months at 4% per annum in order to earn ₹ 150 interest?

   (a) ₹ 5000   (b) ₹ 7500

   (c) ₹ 10000   (d) ₹ 15000

2. A sum of money becomes $\frac{7}{6}$ of itself in 3 years at a certain rate of simple interest. The rate of interest per annum is:

   (a) $5\frac{5}{9}\%$ (b) $6\frac{5}{9}\%$

   (c) 18%   (d) 25%

3. The simple interest on a certain sum at 5% per annum for 3 years and 4 years difference betw+een ₹ 42. The sum is:

   (a) ₹ 210   (b) ₹ 280

   (c) ₹ 750   (d) ₹ 840

4. The difference between the simple interest received from two different sources on ₹ 1500 for 3 years is ₹ 13.50. The difference between their rates of interest is:

   (a) 0.1%   (b) 0.2%

   (c) 0.3%   (d) 0.4%

5. A sum of ₹ 10,000 is lent partly at 8% and remaining at 10% per annum. If the yearly interest on the average is 9.2%, the two parts are:

   (a) ₹ 4000, ₹ 6000

   (b) ₹ 4500, ₹ 5500

   (c) ₹ 5000, ₹ 5000

   (d) ₹ 5500, ₹ 4500

YEAR : 2000

6. A sum of ₹ 1600 gives a simple interest of ₹ 252 in 2 years and 3 months. The rate of interest per annum is:

   (a) $5\frac{1}{2}\%$ (b) 8%

   (c) 7%   (d) 6%

7. The simple interest on a sum of money is 4/9 of the principal and the number of years is equal to the rate percent per annum. The rate per annum is:

   (a) 5%   (b) $6\frac{2}{3}\%$

   (c) 6%   (d) $7\frac{1}{5}\%$

8. A sum of ₹ 400 amounts to ₹ 480 in 4 years. What will it amount to if the rate of interest is increased by 2%?

   (a) ₹ 484   (b) ₹ 560

   (c) ₹ 512   (d) None of these

YEAR : 2002

9. At what rate percent per annum will the simple interest on a sum of money be 2/5 of the principal amount in 10 years ?

   (a) 4%   (b) 6%

   (c) $5\frac{2}{3}\%$ (d) $6\frac{2}{3}\%$

10. In what time will the simple interest be 2/5 of the principal at 8 percent per annum ?

   (a) 8 years   (b) 7 years

   (c) 5 years   (d) 6 years

11. A sum of ₹ 1750 is divided into two parts such that the interests on the first part at 8% simple interest per annum and that on the other part at 6% simple interest per annum are equal. The interest on each part (in rupees) is

   (a) 60   (b) 65

   (c) 70   (d) 40

12. A sum of ₹ 1550 was lent partly at 5% and partly at 8% simple interest. The total interest received after 3 years is ₹ 300. The ratio of money lent at 5% to that at 8% is:

   (a) 5 : 8   (b) 8 : 5

   (c) 31 : 6   (d) 16 : 15

YEAR : 2003

13. What sum of money will amount to ₹ 520 in 5 years and to ₹ 568 in 7 years at simple interest?

   (a) ₹ 400   (b) ₹ 120

   (c) ₹ 510   (d) ₹ 220

14. ₹ 500 was invested at 12% per annum simple interest and another certain sum of money invested at 10% per annum simple interest. If the total interest on both the sum after 4 years is ₹ 480, the latter sum of money is:

   (a) ₹ 450   (b) ₹ 750

   (c) ₹ 600   (d) ₹ 550

15. A money lender finds that due to fall in the annual rate of interest from 8% to $7\frac{3}{4}$%, his yearly income diminishes by ₹61.50. His capital is
(a) ₹22400   (b) ₹23800
(c) ₹24600   (d) ₹26000

16. A certain sum of money amounts to ₹756 in 2 years and to ₹873 in $3\frac{1}{2}$ years at a certain rate of simple interest. The rate of interest per annum is
(a) 10%   (b) 11%
(c) 12%   (d) 13%

17. What sum will amount to ₹7000 in 5 years at $3\frac{1}{3}$% simple interest?
(a) ₹6300   (b) ₹6500
(c) ₹6000   (d) ₹5000

18. The simple interest on a certain sum for 8 months at 4% per annum is ₹129 less than the simple interest on the same sum for 15 months at 5% per annum. The sum is:
(a) ₹2,580   (b) ₹2400
(c) ₹2529   (d) ₹3600

YEAR : 2004

19. A man took a loan from a bank at the rate of 12% per annum at simple interest. After 3 year he had to pay ₹5400 as interest only for that period. The principal amount borrowed by him was:
(a) ₹2000   (b) ₹10,000
(c) ₹20,000   (d) ₹15,000

20. Mohan lent some amount of money at 9% simple interest and an equal amount of money at 10% simple interest each for two years. If his total interest was Rs. 760, what amount was lent in each case?
(a) ₹1700   (b) ₹1800
(c) ₹1900   (d) ₹2000

YEAR : 2005

21. If the simple interest on a certain sum of money for 15 months at $7\frac{1}{2}$% per annum exceeds the simple interest on the same sum for 8 months at $12\frac{1}{2}$% per annum by ₹32.50, then the sum of money (in ₹) is :
(a) 312   (b) 312.50
(c) 3120   (d) 3120.50

22. The simple interest on ₹7,300 from 11 May, 1987 to 10 September, 1987 (both days included) at 5% per annum is
(a) ₹123   (b) ₹103
(c) ₹200   (d) ₹223

23. A person borrows ₹5,000 for 2 years at 4% per annum simple interest. He immediately lends it to another person at $6\frac{1}{4}$% per annum simple interest for 2 years. His gain in this transaction is:
(a) ₹112.50   (b) ₹450
(c) ₹225   (d) ₹150

24. A certain sum of money becomes three times of itself in 20 years at simple interest. In how many years does it become double of itself at the same rate of simple interest?
(a) 8 years   (b) 10 years
(c) 12 years   (d) 14 years

25. A person borrows some money for 5 years and ratio of loan amount : total interest amount is 5 : 2. Then find the ratio of loan amount : interest rate is equal to:
(a) 2 : 25   (b) 2 : 1
(c) 5 : 2   (d) 25 : 2

26. If ₹64 amount to 83.20 in 2 years what will ₹86 amount to in 4 years at the same rate percent per annum?
(a) ₹132.50
(b) ₹135.60
(c) ₹137.60
(d) None of these

27. The effective annual rate of interest, corresponding to a nominal rate of 6% per annum payable half yearly is:
(a) 6.06%   (b) 6.07%
(c) 6.08%   (d) 6.09%

YEAR : 2006

28. If the simple interest for 6 years be equal to 30% of the principal, it will be equal to the principal after
(a) 20 years   (b) 30 years
(c) 10 years   (d) 22 years

29. A person invests money in three different schemes for 6 years, 10 years and 12 years at 10%, 12% and 15% simple interest respectively. At the completion of each scheme, he gets the same interest. The ratio of his investment is
(a) 6 : 3 : 2   (b) 2 : 3 : 4
(c) 3 : 4 : 6   (d) 3 : 4 : 2

YEAR : 2007

30. ₹1,000 is invested at 5% per annum simple interest. If the interest is added to the principal after every 10 years, the amount will become ₹2,000 after
(a) 15 years   (b) 18 years
(c) 20 years   (d) $16\frac{2}{3}$ years

31. A person deposited ₹400 for 2 years, ₹550 for 4 years and ₹1,200 for 6 years. He received the total simple interest of ₹1,020. The rate of interest per annum is
(a) 10%   (b) 5%
(c) 15%   (d) 20%

32. Manoj deposited ₹29400 for 6 years at simple interest. He got ₹4200 as interest after 6 years. The annual rate of interest was:

(a) $2\frac{8}{21}\%$ (b) $2\frac{7}{20}\%$

(c) $3\frac{8}{21}\%$ (d) $4\frac{8}{21}\%$

33. ₹6,000 becomes ₹7,200 in 4 years. If the rate becomes 1.5 times of itself, the amount of the same principal in 5 years will be

(a) ₹8,000   (b) ₹8,250

(c) ₹9,250   (d) ₹9,000

34. Simple interest on ₹500 for 4 years at 6.25% per annum is equal to the simple interest on ₹400 at 5% per annum for a certain period of time. The period of time is:

(a) 4 years   (b) 5 years

(c) $6\frac{1}{4}$ years   (d) $8\frac{2}{3}$ years

35. A borrows ₹800 at the rate of 12% per annum simple interest and B borrows ₹910 at the rate of 10% per annum, simple interest. In how many years will their amounts of debt be equal?

(a) 18 years   (b) 20 years

(c) 22 years   (d) 24 years

36. With a given rate of simple interest, the ratio of principal and amount for a certain period of time is 4 : 5. After 3 years, with the same rate of interest, the ratio of the principal and amount becomes 5 : 7. The rate of interest is:

(a) 4%   (b) 6%

(c) 5%   (d) 7%

37. A person lends 40% of his sum of money at 15% per annum, 50% of rest at 10% per annum and the rest at 18% per annum rate of interest. What would be the annual rate of interest, if the interest is calculated on the whole sum?

(a) 13.4%   (b) 14.33%

(c) 14.4%   (d) 13.33%

38. Ramesh deposited ₹15600 in a fixed deposit at the rate of 10% per annum simple interest. After every second year, he adds his interest earnings to the principal. The interest at the end of fourth year is

(a) ₹1716   (b) ₹1560

(c) ₹3744   (d) ₹1872

39. What equal installment of annual payment will dis-charge a debt which is due as ₹848 at the end of 4 years at 4% per annum simple interest?

(a) ₹212   (b) ₹200

(c) ₹250   (d) ₹225

YEAR : 2008

40. A sum of money at a certain rate per annum of simple interest doubles in the 5 years and at a different rate becomes three times in 12 years. The lower rate of interest per annum is

(a) 15%   (b) 20%

(c) $15\frac{3}{4}\%$ (d) $16\frac{2}{3}\%$

41. In how much time, will a sum of money become double of itself at 15% per annum simple interest?

(a) $6\frac{1}{4}$ years   (b) $6\frac{1}{2}$ years

(c) $6\frac{1}{3}$ years   (d) $6\frac{2}{3}$ years

42. If ₹12,000 is divided into two parts such that the simple interest on the first part for 3 years at 12% per annum is equal to the simple interest on the second part for $4\frac{1}{2}$ years at 16% per annum, the greater part is:

(a) ₹8,000   (b) ₹6,000

(c) ₹7,000   (d) ₹7,500

43. Out of ₹50,000, that a man has, he lends ₹8000 at $5\frac{1}{2}\%$ per annum simple interest and ₹24,000 at 6% per annum simple interest. He lends the remaining money at a certain rate of interest so that he gets total annual interest of ₹3680. The rate of interest per annum, at which the remaining money is lent, is:

(a) 5%   (b) 7%

(c) 10%   (d) 12%

YEAR : 2009

44. The simple interest on a sum of money is $\frac{1}{4}$ of the principal and the number of years is equal to rate percent annum. The rate percent is:

(a) 2.5%   (b) 5%

(c) 7.5%   (d) 10%

45. Equal sum of money are lent to X and Y at 7.5% per annum for a period of 4 years and 5 years respectively. If the difference in interest, paid by them was ₹150, the sum lent to each was

(a) ₹500   (b) ₹1000

(c) ₹2000   (d) ₹3000

46. A sum was invested on simple interest at a certain rate for 2 years. Had it been put at 3% higher rate, it would have fetched ₹72 more. The sum is:

(a) ₹1,200   (b) ₹1,500

(c) ₹1,600   (d) ₹1,800

YEAR : 2010

47. A lent ₹5000 to B for 2 years and ₹3000 to C for 4 years on simple interest at the same rate of interest and received ₹2200 in all from both as interest. The rate of interest per annum is:

(a) 7%   (b) 5%

(c) $7\frac{1}{8}\%$ (d) 10%

48. What annual installment will discharge a debt of ₹6450 due in 4 years at 5% simple interest

(a) ₹1500   (b) ₹1835

(c) ₹1935   (d) ₹1950

49. In how many years will the simple interest on a sum of money be equal to the principal at the rate of $16\frac{2}{3}\%$ per annum?

(a) 4 years   (b) 5 years

(c) 6 years   (d) 8 years

50. The difference between the simple interest received from two different banks on ₹ 500 for 2 years is ₹ 2.50. The difference between their (per annum) rate of interest is:
 (a) 0.10%   (b) 0.25%
 (c) 0.50%   (d) 1.00%

51. A sum of money was lent at simple interest at certain rate for 3 years. Had it been lent at 2.5% per annum higher rate, it would have fetched ₹ 540 more. The money lent was:
 (a) ₹ 6400   (b) ₹ 6472
 (c) ₹ 6840   (d) ₹ 7200

52. A sum of money was invested at a certain rate of simple interest for 2 years. Had it been invested at 1% higher rate, it would have fetched ₹ 24 more interest. The sum of money is:
 (a) ₹ 1200   (b) ₹ 1050
 (c) ₹ 1000   (d) ₹ 9600

53. A man invests half of his capital at the rate of 10% per annum, one-third at 9% and the rest at 12% per annum. The average rate of interest per annum, which he gets is:
 (a) 9%   (b) 10%
 (c) 10.5%   (d) 12%

YEAR : 2011

54. ₹ 800 becomes ₹ 956 in 3 years at a certain rate of simple interest. If the rate of interest is increased by 4%, what amount will ₹ 800 become in 3 years?
 (a) ₹ 1020.80   (b) ₹ 1025
 (c) ₹ 1052   (d) ₹ 1050

55. In a certain time, the ratio of a certain principal and interest obtained from it are in the ratio 10 : 3 at 10% interest per annum. The number of years for which the money was invested is
 (a) 1 years   (b) 3 years
 (c) 5 years   (d) 7 years

56. John invested a sum of money at an annual simple interest rate of 10%. At the end of four years the amount invested plus interest earned was ₹ 770. The amount invested was:
 (a) ₹ 650   (b) ₹ 350
 (c) ₹ 550   (d) ₹ 500

YEAR : 2012

57. In what time will ₹ 1860 amount to 2,641.20 at simple interest 12% per annum ?
 (a) 3 years   (b) $3\frac{1}{2}$ years
 (c) 4 years   (d) $4\frac{1}{2}$ years

58. The population of a village decreases at the rate of 20% per annum. If its population 2 years ago was 10,000, the present population is :
 (a) 4600   (b) 6400
 (c) 7600   (d) 6000

59. The rate of interest per annum at which the total simple interest of a certain capital for 1 year is equal to the total simple interest of the same capital at the rate of 5% per annum for 2 years is:
 (a) $\frac{5}{2}$%   (b) 10%
 (c) 25%   (d) 12.5%

60. Ratio of the principal and the amount after 1 year is 10 : 12. Then the rate of interest per annum is:
 (a) 12%   (b) 16%
 (c) 18%   (d) 20%

61. ₹ 12000 is divided into two parts such that the simple interest on the first part for 3 years at 12% per annum may be equal to the simple interest on the second part for $4\frac{1}{2}$ years at 16% per annum. The ratio of the first part to the second part is:
 (a) 2 :1   (b) 1 : 2
 (c) 2 : 3   (d) 3 : 2

62. A person who pays income tax at the rate of 4 paise per rupee, find that a fall of interest rate (Income Tax) from 4% to 3.75% diminishes his net yearly income by ₹ 48. What is his capital?
 (a) ₹ 24,000   (b) ₹ 25,000
 (c) ₹ 20,000   (d) ₹ 18,000

63. Arun lends ₹ 20,000 to two of his friends. He gives ₹ 12,000 to the first at 8% p.a. simple interest. Arun wants to make a profit of 10% on the whole. The simple interest rate at which he should lend the remaining sum of money to the second friend is:
 (a) 8%   (b) 16%
 (c) 12%   (d) 13%

64. A person invests ₹ 12,000 as fixed deposit at a bank at the rate of 10% per annum simple interest. But due to some pressing needs he has to withdraw the entire money after 3 years, for which the bank allowed him a lower rate of interest. If he gets ₹ 3320 less than what he would have got at the end of 5 years, the rate of interest allowed by the bank is:
 (a) $7\frac{5}{9}$%   (b) $7\frac{4}{9}$%
 (c) $7\frac{8}{9}$%   (d) $8\frac{7}{9}$%

65. A certain scheme of investment in simple interest declares that it triples the investment in 8 years. If you want to quadruple the money through that scheme for how many years you have to invest for:
 (a) 11 years 6 months
 (b) 10 years 8 months
 (c) 10 years
 (d) 12 years

66. If a man receives on one-fourth of his capital 3% interest, on two third 5% and on the remaining 11%, the percentage he receives on the whole is :
(a) 4.5%　　　(b) 5%
(c) 5.5%　　　(d) 5.2%

(SSC CHSL DEO & LDC 04.11.2012)

YEAR : 2013

67. The sum lent at 5% per annum (i.e. 365 days) simple interest, that produces interest, of ₹ 2.00 per day, is
(a) ₹ 1,400　　(b) ₹ 14,700
(c) ₹ 14,600　(d) ₹ 7,300

(SSC MTS Exam 17.03.2013)

68. If a sum of money amounts to ₹ 12, 900 and ₹ 14, 250 at the end of 4th year and 5th year respectively at a certain rate of simple interest, then the rate of interest is:
(a) 10%　　　(b) 12%
(c) 18%　　　(d) 20%

(SSC Constable (GD) Exam 12.05.2013)

69. A person deposited ₹ 500 for 4 years and ₹ 600 for 3 years at the same rate of simple interest in a bank. Altogether he received ₹ 190 as interest. The rate of simple interest per annum was:
(a) 4%　　　(b) 5%
(c) 2%　　　(d) 3%

(SSC MTS Exam 17.03.2013)

70. The simple interest on ₹ 4,000 in 3 years at the rate of x% per annum equals the simple interest on ₹ 5,000 at the rate of 12% per annum in 2 years. The value of x is:
(a) 10%　　　(b) 6%
(c) 8%　　　(d) 9%

(SSC CGL Tier I Exam 19.05.2013)

71. If x, y, z, are three sum of money such that y is the simple interest on x and z is the simple interest on y for the same time and at the same rate of interest, then what is the relation between x, y, z we have:
(a) $x^2 = xy$　　(b) $xyz = 1$
(c) $x^2 = yz$　　(d) $y^2 = zx$

(SSC MTS Exam 10.11.2013)

72. A sum of ₹ 2,400 amounts to ₹ 3,264 in 4 years at a certain rate of simple interest. If the rate of interest is increased by 1% the same sum in the same time would amount to
(a) ₹ 3,288　　(b) ₹ 3,312
(c) ₹ 3,340　　(d) ₹ 3,360

(SSC MTS Exam 24.03.2013)

73. Nitin borrowed some money at the rate of 6% p.a. for the first three years, 9% p.a. for the next five years and 13% p.a. for the period beyond eight years. If the total interest paid by him at the end of eleven years is ₹ 8,160, the money borrowed by him (in ₹) was
(a) 12,000　　(b) 6,000
(c) 8,000　　　(d) 10,000

(SSC FCI Asst. Grade III 07.04.2013)

74. Two equal sum were lent out at 7% and 5% S.I respectively. The interest earned on the two loans add up to ₹ 960 for 4 years. The total sum lent out is
(a) ₹ 3500　　(b) ₹ 2500
(c) ₹ 2000　　(d) ₹ 3000

(SSC Constable (GD) 12.05.2013)

YEAR : 2014

75. In what time will ₹ 8000, at 3% per annum, produce the same interest as ₹ 6000 does in 5 years at 4% simple interest is?
(a) 5 years　　(b) 6 years
(c) 3 years　　(d) 4 years

(SSC CGL Tier I Exam 26.10.2014)

76. A sum of ₹ 800 amounts to ₹ 920 in 3 years at the simple interest rate. If the the rate is increased by 3% p.a. , what will be the sum amount to in the same period?
(a) ₹ 992　　　(b) ₹ 962
(c) ₹ 942　　　(d) ₹ 982

(SSC CHSL DEO & LDC 02.11.2014)

77. The amount ₹ 2,100 became ₹ 2,352 in 2 years at simple interest. If the interest rate is decreased by 1%, what is the new interest?

(a) ₹ 210　　　(b) ₹ 220
(c) ₹ 242　　　(d) ₹ 252

(SSC CHSL DEO & LDC 02.11.2014)

78. Ram deposited a certain sum of money in a company at 12% per annum simple interest for 4 years and deposited equal amount in fixed deposit in a bank for 5 years at 15% per annum simple interest. If the difference in the interest from two sources is ₹ 1350 then the sum deposited in each case is:
(a) ₹ 3000　　(b) ₹ 4000
(c) ₹ 6500　　(d) ₹ 5000

(CGL 16-08-2015 Evening)

79. In certain years a sum of money is doubled itself at $6\frac{1}{4}$% simple interest per annum, then the required time will be
(a) $12\frac{1}{2}$ years　(b) 8 years
(c) $10\frac{2}{3}$ years　(d) 16 years

(CGL 16-08-2015 Evening)

80. A sum of money lent out at simple interest amounts to ₹ 720 after 2 years and ₹ 1020 after a further period of 5 years. Find the principal.
(a) ₹ 6000　　(b) ₹ 600
(c) ₹ 1740　　(d) ₹ 120

(CGL 09-08-2015 Evening)

81. A and B borrowed ₹ 2,000 and ₹ 3,000 respectively at the same rate of interest for $2\frac{1}{2}$ years. If B paid ₹ 125 more interest than A, find the rate of interest.
(a) 7%　　　(b) 8%
(c) 6%　　　(d) 5%

(CPO 21-06-2015 Evening)

82. The simple interest on a sum of money is $\frac{8}{25}$ of the sum. If the number of years is numerically half the rate percent per annum, then the rate percent per annum is
(a) 5　　　　(b) 4
(c) $6\frac{1}{4}$　　　(d) 8

(CGL Mains 25-10-2015)

83. A sum of ₹ 7,930 is divided into 3 parts and given at loan at 5% simple interest to A, B and C for 2, 3 and 4 years respectively. If the amounts of all three are equal after their respective periods of loan, then the A received a loan of
(a) ₹ 2,800   (b) ₹ 3,050
(c) ₹ 2,750   (d) ₹ 2,760

84. The principal which gives ₹ 1 interest per day at a rate of 5% simple interest per annum is
(a) ₹ 5000   (b) ₹ 35500
(c) ₹ 7300   (d) ₹ 3650

85. The time required for a sum of money to amount to four times itself at 15% simple interest p.a. will be.
(a) 20 years   (b) 30 years
(c) 10 years   (d) 15 years

86. Arvind deposited a sum of money with a bank on 1st Janaury, 2012 at 8% simple interest per annum.He received an amount 3,144 on 7th August, 2012. The money he deposited with the bank was
(a) ₹ 3,080   (b) ₹ 2,500
(c) ₹ 3,000   (d) ₹ 3,100

87. A man buys a TV priced at 16000. He pays 4000 at once and the rest after 15 months on which he is charges a simple interest at the rate of 12% per year. The total amount he pays for the TV is:
(a) ₹ 18,200   (b) ₹ 17,200
(c) ₹ 17,800   (d) ₹ 16,800

88. If the ratio of principal and the simple interest of 5 years is 10 : 3, then the rate of interest is:
(a) 6%   (b) 8%
(c) 3%   (d) 5%

89. Mr. Dutta desired to deposit his retirement benefit of ₹3 lacs partly to a post office and partly to a bank at 10% and 6% simple interests respectively. If his monthly interest income was ₹2000, then the difference of his deposits in the post office and in the bank was:
(a) ₹ 1,00,000   (b) ₹ 40,000
(c) ₹ 50,000   (d) ₹ Nil

90. A boy aged 12 years is left with ₹100,000 which is under a trust. The trustees invest the money at 6% per annum and pay the minor boy a sum of ₹2500, for his pocket money at the end of each year. The expenses of trust come out to be ₹500 per annum. Find the amount that will be handed over to the minor boy after he attains the age of 18 years.
(a) ₹ 125000   (b) ₹ 118000
(c) ₹ 150000   (d) ₹ 120000

91. The simple interest on ₹ 36,000 for the period from 5th January to 31st May, 2013 at 9.5% per annum is
(a) ₹ 1,368   (b) ₹ 1,338
(c) ₹ 1,425   (d) ₹ 1,400

92. The rate of simple interest per annum of bank being decreased from 5% to 3.5%, the annual income of a person from interest was less by ₹ 105. The sum deposited at the bank was
(a) ₹ 7,000   (b) ₹ 6,000
(c) ₹ 7,200   (d) ₹ 6,800

93. Tushar borrowed a sum of ₹ 12,000 at 15% per annum from a money-lender on 13th January, 1987 and return the amount on 8th June, 1987 to clear his debt. Then the amount paid by Tushar to the money-lender to clear his debt was.
(a) ₹ 15,000   (b) ₹ 11,394
(c) ₹ 12,720   (d) ₹ 13,650

94. A sum of Rs. x was put at simple interest at a certain rate for 2 years. Had it been put at 3% higher rate, it would have fetched Rs. 300 more. The value of $4x$ is.
(a) ₹ 24,000   (b) ₹ 20,000
(c) ₹ 16,000   (d) ₹ 36,000

95. The simple interest on a sum of money for 3 years is ₹ 240 and the compound interest on the same sum, at the same rate for 2 years is ₹ 170. The rate of interest is:
(a) $12\dfrac{1}{2}\%$ (b) $5\dfrac{5}{17}\%$
(c) 8%   (d) $29\dfrac{1}{6}\%$

96. A certain sum of money amount to ₹2200 at 5% interest, ₹2320 at 8% interest in the same period of time. The period of time is:
(a) 2 years
(b) 4 years
(c) 5 years
(d) 3 years

97. For 2 years, a sum was put at SI at a certain rate. If the rate was 3 % higher, it would have fetched ₹ 300 more. What will be the sum?
(a) 5000   (b) 4800
(c) 2500   (d) 4484

98. A money lender claims to lend money at the rate of 10% per annum simple interest. However, he takes the interest in advance when he lends a sum for one year. At what interest rate does he lend the money actully?
(a) 10%   (b) $10\dfrac{1}{9}\%$
(c) 11%   (d) $11\dfrac{1}{9}\%$

99. A certain sum doubles in 7 years at simple interest. The same sum under the same interest rate will become 4 times in how many years.
(a) 14   (b) 28
(c) 21   (d) 10

100. On a certain sum the simple interest for $12\frac{1}{2}$ year is $\frac{3}{4}$ of the sum. Then the rate of interest is:
(a) 5% per yr   (b) 6% per yr
(c) 7% per yr   (d) 8% per yr

101. A man borrows some amount at the rate of 12% per annum at simple interest. After 6 years 8 months, he paid ₹ 720 as an interest. Find the amount borrowed by him.
(a) ₹ 900   (b) ₹ 960
(c) ₹ 920   (d) ₹ 1620

102. The discount on a certain sum of money, due at the end of $2\frac{1}{4}$ years at $2\frac{2}{3}$% p.a. is ₹ 78. Find the sum.
(b) ₹ 1,300
(c) ₹ 1,378   (d) ₹ 1,400

103. If the simple interest on ₹ 1 for 1 month is 1 paisa, then the rate percent per annum will be
(a) 10%   (b) 8%
(c) 12%   (d) 6%

104. A money lender lends ₹ 400 for 3 years to a person and lends ₹ 500 for 4 years to the other person at the same rate of simple interest. If altogether he receives ₹ 160 as interest, what is the rate of interest per annum
(a) 5%   (b) 7%
(c) 9%   (d) 10%

105. The simple interest on a certain sum of money at the rate of 5% per anuum for 8 years is ₹ 840. Rate of interest for which the same amount of interest can be received on the same sum after 5 years is
(a) 7%   (b) 8%
(c) 9%   (d) 10%

106. If a sum of money doubles itself in 8 yrs, then the interest rate in percentage is?
(a) $8\frac{1}{2}$%   (b) 10%
(c) $10\frac{1}{2}$%   (d) $12\frac{1}{2}$%

107. Alipta got some amount of money from her father. In how many years will the ratio of the money and the interest obtained from it be 10 : 3 at 6% simple interest per annum?
(a) 7 years   (b) 3 years
(c) 5 years   (d) 4 years

108. For what sum will the simple interest at R% for 2 years will be R?
(a) $\frac{100}{2R}$ (b) 50
(c) $\frac{100}{R}$ (d) $\frac{200}{R}$

109. The sum of money that will yield ₹ 60 as simple interest at 6% per annum in years for 5 years is
(a) 200   (b) 225
(c) 175   (d) 300

110. The rate of simple interest per annum at which a sum of money double itself in $16\frac{2}{3}$ years is
(a) 4%   (b) 5%
(c) 6%   (d) $6\frac{2}{3}$%

111. A sum of 3000 yields an interest of 1080 at 12% per annum simple interest in how many years?
(a) 4 years   (b) 3 years
(c) 5 years   (d) $2^{1/2}$ years

112. In simple interest rate per annum a certain sum amounts to ₹ 5,182 in 2 years and ₹ 5,832 in 3 years. The principal in rupees is

(a) ₹ 2882   (b) ₹ 5000
(c) ₹ 3882   (d) ₹ 4000

113. If a borrowec ₹ P at x% and B borrowed ₹ Q (>P) at y% per annum at simple interest at the same time, then the amount of their debts will be equal after
(a) $100\left(\dfrac{Q-P}{Px-Qy}\right)$ years
(b) $100\left(\dfrac{Px-Qy}{Q-P}\right)$ years
(c) $100\left(\dfrac{Px-Qy}{P-Q}\right)$ years
(d) $100\left(\dfrac{P-Q}{Px-Qy}\right)$ years

114. If a sum of money becomes ₹ 4000 in 2 years and ₹ 5500 in 4 years 6 months at the same rate of simple interest per annum. Then the rate of simple interest is
(a) $21\frac{3}{7}$%   (b) $21\frac{2}{7}$%
(c) $21\frac{1}{7}$%   (d) $21\frac{5}{7}$%

115. ₹ 260200 is divided between Ram and Shyam so that the amount that Ram receives in 3 years is the same as that Shyam receives in 6 years. If the interest is compounded annually at the rate of 4% per annum then Ram's share is
(a) ₹ 12500   (b) ₹ 137745.02
(c) ₹ 15200   (d) ₹ 108200

116. A sum of ₹ 4000 is lent out in two parts, one at 8% simple interest and the other at 10% simple interest. If the annual interest is ₹ 352. The sum lent at 8% is
(a) ₹ 2900   (b) ₹ 2200
(c) ₹ 2400   (d) ₹ 3100

ANSWER KEY

1. (b)	14. (c)	27. (d)	40. (d)	53. (b)	66. (b)	79. (d)	92. (a)	105. (b)
2. (a)	15. (c)	28. (a)	41. (d)	54. (c)	67. (c)	80. (b)	93. (c)	106. (d)
3. (d)	16. (d)	29. (a)	42. (a)	55. (b)	68. (c)	81. (d)	94. (b)	107. (c)
4. (c)	17. (c)	30. (d)	43. (c)	56. (c)	69. (b)	82. (d)	95. (a)	108. (b)
5. (a)	18. (d)	31. (a)	44. (b)	57. (b)	70. (a)	83. (d)	96. (a)	109. (a)
6. (c)	19. (d)	32. (a)	45. (c)	58. (b)	71. (d)	84. (c)	97. (a)	110. (c)
7. (b)	20. (d)	33. (b)	46. (a)	59. (b)	72. (d)	85. (a)	98. (d)	111. (b)
8. (c)	21. (c)	34. (c)	47. (d)	60. (d)	73. (c)	86. (c)	99. (c)	112. (c)
9. (a)	22. (a)	35. (c)	48. (a)	61. (a)	74. (c)	87. (c)	100. (b)	113. (a)
10. (c)	23. (c)	36. (c)	49. (c)	62. (c)	75. (a)	88. (a)	101. (a)	114. (a)
11. (a)	24. (b)	37. (c)	50. (b)	63. (d)	76. (a)	89. (d)	102. (c)	115. (b)
12. (d)	25. (d)	38. (c)	51. (d)	64. (b)	77. (a)	90. (b)	103. (c)	116. (c)
13. (a)	26. (c)	39. (b)	52. (a)	65. (d)	78. (d)	91. (a)	104. (a)	

EXPLANATION

1. (b) Rate % = 4%,
   Simple Interest = ₹ 150

   Time = 6 months = $\frac{6}{12} = \frac{1}{2}$ year

   Let the principal = ₹ P
   We know,

   $$\boxed{SI = \frac{P \times R \times T}{100}}$$

   Where,
   SI → Simple interest
   P → Principal
   R → Rate
   T → Time

   $\Rightarrow 150 = \frac{P \times 4 \times 1}{2 \times 100}$

   $\Rightarrow P = \frac{150 \times 200}{4} = ₹ \mathbf{7500}$

   Alternate
   Rate = 4% (Annual)
   Half yearly Rate = 2%
   According to the question
   Amount of 2% = 150
   Amount (100%) = 7500

2. (a) Let principal = 6P,

   Hence, Amount = $6P \times \frac{7}{6} = 7P$
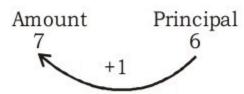
   ∴ SI = 7P – 6P = P
   Time = 3 years

   $$\boxed{SI = \frac{P \times R \times T}{100}}$$

   $\Rightarrow P = \frac{6P \times R \times 3}{100}$

   $\Rightarrow R = \frac{100}{18} = \frac{50}{9} = \mathbf{5\frac{5}{9}}\%$

   Alternate
   Note: In such type of questions to save your valuable time try to think like that.

   Amount   Principal
   7   6
      ↖ +1 ↗

   Required Rate% = $\frac{1}{6} \times \frac{100}{3} = \mathbf{5\frac{5}{9}}\%$

3. (d) **Note** → SI for every year will be same.
   Simple Interest for 3 years
   = 3 × 5 = 15%
   Simple Interest for 4 years
   = 4 × 5 = 20%
   Difference in interest
   = (20 – 15) = 5%
   According to question,
   5% of sum = 42

   Sum = $\frac{42}{5} \times 100 = ₹ \mathbf{840}$

4. (c) Let the rate of interest for two different sources is r_1 and r_2 respectively.
   According to the question,

   $\frac{1500 \times r_1 \times 3}{100} - \frac{1500 \times r_2 \times 3}{100}$
   = 13.50
   $4500\, r_1 - 4500\, r_2 = 1350$

   $(r_1 - r_2) = \frac{1350}{4500} = 0.3\%$

   Hence, Required difference in rates = **0.3%**

   Alternate
   Let the difference in rates = d%
   ∴ Difference of three years = 3d%
   According to the question,

   d = $\frac{13.50}{1500} \times \frac{100}{3} = \frac{1350}{4500} = \mathbf{0.3\%}$

5. (a) Let the sum lent at 8% is x then sum lent at 10% is $(10000 - x)$
   According to the question,

   $x \times \frac{8}{100} \times 1 + (10000 - x) \times \frac{10}{100} \times 1$

   $= 10000 \times \frac{9.2}{100} \times 1$

   $\frac{8x}{100} + \frac{10(10000 - x)}{100} = 920$

   $8x + 100000 - 10x = 92000$
   $-2x + 100000 = 92000$
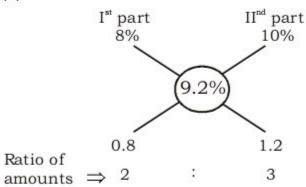 $-2x = 92000 - 100000$
   $-2x = -8000$
   $x = 4000$
   Hence, Amount lent at 8% = ₹ 4000
   Amount lent at 10% = (10000 – 4000) = **₹ 6000**

6. **Alternate**
   Note:- In such type of questions to save your valuable time follow the given below method.
   By alligation Method
   (i)

   Ist part   IInd part
   8%   10%
       (9.2%)
   0.8   1.2
   Ratio of amounts ⇒ 2 : 3

   According to the question,
   (2 + 3)units = ₹ 10,000
   5 units = ₹ 10,000
   1 unit = ₹ 2,000
   Hence amount invested at 8%
   = 2 units
   = 2 × 2000 = ₹ 4000
   Amount invested at 10%
   = 3 units
   = 3 × 2000 = ₹ **6000**

6. (c) Time = 2 years 3 months
   = $2 + \frac{3}{12} = \frac{9}{4}$ years

   We know $\boxed{SI = \frac{P \times R \times T}{100}}$

   P = ₹ 1600, T = $\frac{9}{4}$ years, SI = ₹252
   Put values in the above formula,

   $\Rightarrow 252 = \frac{1600 \times R \times 9}{4 \times 100}$

   $\Rightarrow 252 = 36\, R$

   $\Rightarrow R = \frac{252}{36} = \mathbf{7\%}$

7. (b) Let the principal = 9 units
   Hence simple interest

   $= \frac{4}{9} \times 9 = 4$ units

   Let, Rate of interest
   = R%
   R = T (Given)
   By using formula,

   $$\boxed{SI = \frac{P \times R \times T}{100}}$$

   $4 = \frac{9 \times R \times R}{100} \Rightarrow R^2 = \frac{400}{9}$

   $R = \frac{20}{3} = \mathbf{6\frac{2}{3}}\%$

8. (c) Principal = ₹ 400,

Amount = ₹ 480

Simple Interest = ₹ (480 – 400) = ₹ 80

Time = 4 years

$$\boxed{\text{Rate\%} = \frac{\text{SI} \times 100}{\text{P} \times \text{T}}}$$

Rate% = $\frac{80 \times 100}{400 \times 4} = \frac{8000}{1600}$ = 5%

New rate of interest

= (5 + 2) = 7%

Interest = $\frac{400 \times 7 \times 4}{100}$ = 112

Hence amount = ₹ (400 + 112)

= **₹ 512**

Alternate

Note:- In such type of questions to save your valuable time follow the given below method.

Increased in rates = 4 × 2 = 8%

Hence increased in amount

= 400 × $\frac{8}{100}$ = 32

Hence new amount

= ₹ (480 + 32) = **₹ 512**

9. (a) Let principal = 5 units
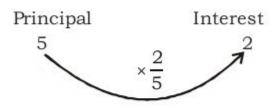
Hence interest = 5 × $\frac{2}{5}$ = 2 units

Time = 10 years,

By using formula,

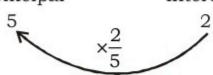Rate% = $\frac{2}{5} \times \frac{100}{10}$ = **4%**

Alternate

Note:- In such type of questions to save your valuable time follow the given below method.

Principal   Interest

5         $\times \frac{2}{5}$ 2

Required Rate % = $\frac{2}{5} \times \frac{100}{10}$ = **4%**

10. (c) Principal   Interest

5         $\times \frac{2}{5}$ 2

Required time = $\frac{2}{5} \times \frac{100}{8}$ = **5 years**

11. (a) Principal = ₹ 1750

Let the first part = x

Hence second part = (1750 – x)

According to the question,

$x \times \frac{8}{100} \times 1 = (1750 - x) \times \frac{6}{100} \times 1$

$4x = 5250 - 3x$

$7x = 5250$

$x = 750$

First part = ₹ 750

∴ Second part = ₹ (1750 – 750)

= ₹ 1000

Required interest

= $750 \times \frac{8}{100}$ = ₹ 60

Alternate

Note:- In such type of questions to save your valuable time follow the given below method.

Let, Principal = 100 units in both cases

      Ist part   IInd part   Total

Principal → $100_{\times 3}$: $100_{\times 4}$ $\xrightarrow{+}$ 700 units

Interest → $8_{\times 3}$: $6_{\times 4}$

Note: Interest is same in both cases

According to the question,

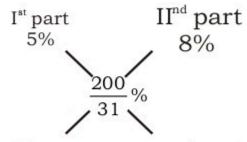700 units = ₹ 1750

1 unit = ₹ $\frac{1750}{700}$

24 units = ₹ $\frac{1750}{700} \times 24$ = ₹ 60

Hence, required interest = **₹ 60**
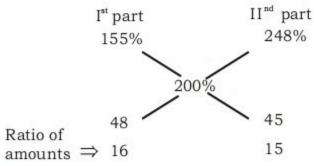
12. (d) Avg. rate of interest

= $\frac{300}{1550} \times \frac{100}{3} = \frac{200}{31}$%

By using mixture and Alligation Rule,

Ist part   IInd part
5%   8%

$\frac{200}{31}$%

Note: Always remember to solve such type of questions multiply by 31 in both parts.

Ist part   IInd part
155%   248%

200%

     48   45

Ratio of amounts ⇒ 16   15

Required Ratio = 16 : 15

13. (a)

      Amount   Time
      (₹)   (years)
      520   5
+48   +2
      568   7

Hence interest in 2 years = ₹ 48

∴ Interest in 1 years = ₹ $\frac{48}{2}$ = ₹ 24

∴ Interest in 5 years = ₹ 24 × 5

= ₹ 120

∴ We know,

$\boxed{\text{SI} = \text{Amount} - \text{Principal}}$

Principal = ₹(520 – 120) = **₹ 400**

14. (c) Let the latter amount = ₹ x

According to the question,

$\frac{500 \times 12 \times 4}{100} + \frac{x \times 10 \times 4}{100}$ = 480

$240 + \frac{4x}{10}$ = 480

$\frac{4x}{10}$ = 240

x = 600

Hence latter amount = **₹ 600**

Alternate

Note:- In such type of questions to save your valuable time follow the given below method.

Interest on first part
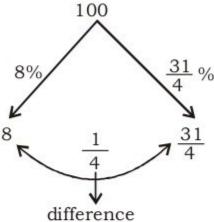
= $\frac{500 \times 12 \times 4}{100}$ = ₹ 240

Remaining interest

= ₹ (480 – 240)

= ₹ 240

Hence Required some of money

= $\frac{240}{(4 \times 10)} \times 100$ = **₹ 600**

15. (c) Let initial capital = 100 units

           100

8% $\frac{31}{4}$ %

8        $\frac{1}{4}$ $\frac{31}{4}$

      difference

According to the question,

$\frac{1}{4}$ unit = ₹ 61.50

1 unit = ₹ 61.50 × 4 = ₹ 246

100 units = ₹ 24600

Hence, Required capital

= **₹ 24600**

Alternate

Difference in percentage

$= 8\% - \dfrac{31}{4}\%$

$\dfrac{1}{4}\% = 61.50$

$100\% = 24600$

16. (d)

Amount (Rs.)	Time (years)
756	2
+117 (	) 1.5 years
873	$3\dfrac{1}{2}$

Hence, Interest in $1\dfrac{1}{2}$ years = ₹117

Interest in 1 year $= \dfrac{117}{3} \times 2 = ₹ 78$

Interest in 2 years = ₹ 78× 2 = ₹156

∴ Principal $= ₹(756 - 156) = ₹600$

Required rate % $= \dfrac{78}{600} \times 100 = \textbf{3\%}$

17. (c) Amount = ₹ 7000

Total interest in 5 years

$= 5 \times \dfrac{10}{3}\% = \dfrac{50}{3}\% = \dfrac{1}{6}$

Principal	Amount
6	(6 + 1)
↓×1000	↓×1000
6000	7000

Hence Required principal = ₹ **6000**

18. (d) Let the sum = ₹ P, $T_1 = \dfrac{8}{12}$ yrs,

$T_2 = \dfrac{15}{12}$ years

According to the question,

$\dfrac{P \times 5 \times 15}{100 \times 12} - \dfrac{P \times 4 \times 8}{100 \times 12} = 129$
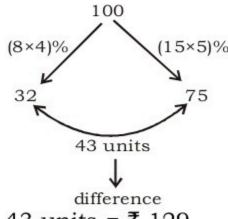
$\Rightarrow \dfrac{43P}{1200} = 129$

$\Rightarrow P = Rs. 3600$

Hence required sum = ₹ **3600**

Alternate

Let sum = 100 units

According to the question,

```
        100
 (8×4)%/    \(15×5)%
  32        75
   \↘      ↙/
    43 units
      ↓
   difference
```

43 units = ₹ 129

1 unit = ₹ 3

---

100 units = ₹ 3 × 100 = ₹ 300

yearly sum = ₹12 × 300 = ₹ 3600

Note: Time is given in months and rate% is given per annum. Hence we multiplied the answer by 12.

19. (d) Total interest paid in 3 years = 12 × 3 = 36% Interest = ₹ 5400

According to the question,

36% of sum = ₹ 5400

1% of sum $= \dfrac{5400}{36}$

100% of sum $= \dfrac{5400}{36} \times 100$

= ₹ 15000

Hence, required sum = ₹ **15000**

20. (d) Let the amount invested = ₹ P

According to the question,

$\dfrac{P \times 9 \times 2}{100} + \dfrac{P \times 10 \times 2}{100} = 760$

$\dfrac{(18P + 20P)}{100} = 760$

38P = 76000, P = 2000

Alternate

Total Interest percent

= (9 × 2)% + (10 × 2)%

$\Rightarrow$ 38% = 760

$\Rightarrow$ 100% = 2000

Hence required principal = ₹ 2000

21. (c) $T_1 = 15$ months $= \dfrac{15}{12}$ years,

$R_1 = 7\dfrac{1}{2}\% = \dfrac{15}{2}\%$

$T_2 = 8$ months $= \dfrac{8}{12}$ years,

$R_2 = 12\dfrac{1}{2}\% = \dfrac{25}{2}\%$

Let the principal = P

According to the question,

$\dfrac{P \times 15 \times 15}{12 \times 2 \times 100} - \dfrac{P \times 25 \times 8}{12 \times 2 \times 100} = 32.50$

$\dfrac{225P}{2400} - \dfrac{200P}{2400} = 32.50$

$\dfrac{25P}{2400} = 32.50 \Rightarrow P = ₹ 3120$

Hence required principal = ₹ **3120**

---

22. (a) Total days

$= \begin{matrix} \text{May} & \text{June} & \text{July} & \text{Aug.} & \text{Sept} \\ 21 & + 30 & + 31 & + 31 & + 10 \end{matrix}$

= 123 days

By using formula,

SI $= \dfrac{7300 \times 5 \times 123}{100 \times 365} = ₹ 123$

23. (c) Gain%

$= \left(6\dfrac{1}{4}\% \times 2\right) - (4 \times 2)\%$

$= 12.5\% - 8\% = 4.5\%$

Principal = ₹ 5000

Required gain $= 5000 \times \dfrac{4.5}{100}$

$= ₹ \textbf{225}$

24. (b) Let principal = P,

∴ Amount = 3P

Interest = 3P – P = 2P

According to the question,

$2P = \dfrac{P \times R \times 20}{100} \Rightarrow R = 10\%$

Let after t year it will become double

Hence, interest = 2P – P = P

$\Rightarrow P = \dfrac{P \times 10 \times t}{100} \Rightarrow t = \textbf{10 years}$

Alternate

**Note:** In such type of questions to save your valuable time follow the given below method.

```
Principal  Amount    Interest    Time (Years)
   1    ⤻   3   →diff.→ 2  )×½    20 )×½
   1    ⤻   2   →diff.→ 1         10
```

Hence required time = 10 years

25. (d) Time(t) = 5 years

loan amount : interest amount = 5 : 2

Rate of interest $= \dfrac{2}{5} \times \dfrac{100}{5} = 8\%$

Let, Principal = 100

Principal	:	**Interest rate**
100		8
)×¼	:	)×¼
25		2

Hence Required ratio = **25 : 2**

26. (c) let the rate of interest = R%

⇒ According to question

⇒ Intrest in 2 yrs = 83.20 – 64

= 19.20

⇒ $R\% = \dfrac{S.I.\times 100}{P\times T}$

⇒ $R\% = \dfrac{19.20\times 100}{64\times 2}$

⇒ $R\% = \dfrac{30}{2} = 15\%$

Therefore, Amount of ₹ 86 will be in four years by 15% rate of interest

⇒ $S.I = \dfrac{86\times 15\times 4}{100} = ₹51.6$

⇒ Amount = Principal + S.I.

= 86 + 51.6 = ₹ 137.60

27. (d) Half yearly Rate = $\dfrac{6}{2} = 3\%$

Effective Rate % = $3 + 3 + \dfrac{3\times 3}{100}$

= 6.09%

28. (a) Let principal = 10P

interest = $10P \times \dfrac{30}{100} = 3P$

According to the question,

Case (i)

$3P = \dfrac{10P\times R\times 6}{100} \Rightarrow R = 5\%$

Case (ii)

Interest = Principal = 10p

$10P = \dfrac{10P\times 5\times t}{100}$

t = 20 years

29. (a) Let the principal in each case = 100 units

According to the question,

	Iˢᵗ part	IIⁿᵈ part	IIIʳᵈ part
Principal →	$100_{\times 6}$	$100_{\times 3}$	$100_{\times 2}$
Rate % →	10	12	15
Time →	6	10	12
Interest →	$60_{\times 6}$	$120_{\times 3}$	$180_{\times 2}$

Interest → Interest is same in each, so equal the interest.

Hence required ratio

= 600 : 300 : 200 of sum 6 : 3 : 2

Alternate

When Interest is equal then sum of amount will be distributed in following ratio.

= Required ratio of sum

= $\dfrac{1}{R_1 T_1} : \dfrac{1}{R_2 T_2} : \dfrac{1}{R_3 T_3}$

= $\dfrac{1}{6\times 10} : \dfrac{1}{10\times 12} : \dfrac{1}{12\times 15}$

= $\dfrac{1}{60} : \dfrac{1}{120} : \dfrac{1}{180} \Rightarrow 6:3:2$

30. (d) Principal = ₹1000, Rate = 5%

Interest for first 10 years

= $\dfrac{1000\times 5\times 10}{100} = ₹500$

After 10 years principal

= (1000 + 500) = ₹ 1500

Remaining interest

= ₹ (2000 – 1500) = ₹ 500

Required time

= $\dfrac{500}{1500}\times\dfrac{100}{5} \Rightarrow \dfrac{100}{15} = \dfrac{20}{3} = 6\dfrac{2}{3}$ yrs

Total time = $\left(10 + 6\dfrac{2}{3}\right)$ years

= $16\dfrac{2}{3}$ **years**

31. (a) Let the Rate of interest = R%

According to the question,

$\dfrac{400\times R\times 2}{100} + \dfrac{550\times R\times 4}{100} + \dfrac{1200\times R\times 6}{100}$

= 1020

8R + 22R + 72R = 1020

102 R = 1020

R = **10%**

32. (a) By using formula,

$4200 = \dfrac{29400\times R\times 6}{100}$

$R = \dfrac{4200}{294\times 6} = \dfrac{700}{294} = \dfrac{100}{42} = \dfrac{50}{21}$

$R = 2\dfrac{8}{21}\%$

33. (b)

Principal		Amount
6000	+ 1200	7200

By using formula,

Rate% = $\dfrac{1200}{6000}\times\dfrac{100}{4} = 5\%$

New rate % = $5\times\dfrac{3}{2} = 7.5\%$

Interest after 5 years

= $\dfrac{6000\times 7.5\times 5}{100} = ₹ 2250$

Hence, amount = ₹ (6000 + 2250) = ₹ 8250

34. (c) Let the required time = t years

According to the question,

$\dfrac{500\times 4\times 6.25}{100} = \dfrac{400\times 5\times t}{100}$

5 × 4 × 625 = 400 × 5 × t

$t = \dfrac{625}{100} = \dfrac{25}{4} = 6\dfrac{1}{4}$ **years**

35. (c) Let after t year amount will be equal.

According to the question,

$800 + \dfrac{800\times 12\times t}{100} = 910 + \dfrac{910\times 10\times t}{100}$

800 + 96t = 910 + 91t

5t = 110

t = **22 years**

Hence, after 22 years the amount will be equal.

36. (c)

Principal	Amount	Interest
$4_{\times 5}$:	$5_{\times 5}$ ──→ diff.	$1_{\times 5}$
$5_{\times 4}$:	$7_{\times 4}$ ──→ diff.	$2_{\times 4}$

Note:- Principal will be same so equate the principal.

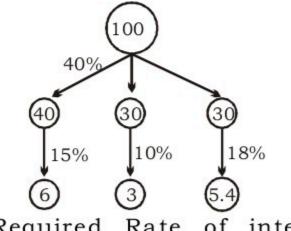| Principal	Amount	Interest
20 :	25 ──→ diff.	5
20 :	28 ──→ diff.	8

(with +3)

Interest in 3 years = 3 units

Interest in 1 year = $\dfrac{3}{3} = 1$ unit

Required Rate% = $\dfrac{1}{20}\times 100 = $ **5%**

37. (c) $40\% = \dfrac{2}{5}$, $50\% = \dfrac{1}{2}$

Let the total amount = 100

According to the question,

Required Rate of interest

= $\dfrac{(6+3+5.4)}{100}\times 100 = $ **14.4%**

38. (c) Principal = ₹ 15600,
Rate% = 10%

$$SI = \frac{15600 \times 10 \times 2}{100} = ₹\ 3120$$

Now, New principal for next two years
= 15600 + 3120 = ₹ 18720

$$New\ SI = \frac{18720 \times 10 \times 2}{100} = ₹\ 3744$$

Hence Required SI = ₹ 3744

39. (b) **Note:** In such type of questions to save your valuable time follow the given below method.
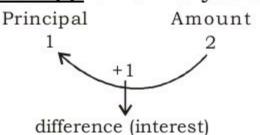Value of Installment

$$= \frac{Principal \times 100}{time \times 100 + (t_{n-1} + t_{n-2} + \ldots \ldots 1) \times Rate\%}$$

Principal = ₹ 848, Rate = 4%, Time = 4years

$$Installment = \frac{848 \times 100}{4 \times 100 + (3+2+1) \times 4}$$

$$= \frac{848 \times 100}{(400+24)} = \frac{848 \times 100}{424} = ₹\ 200$$

40. (d) According to the question,
Case(i): time = 5 years

Principal   Amount
1   2
+1
difference (interest)

$$Required\ Rate\ \% = \frac{1}{1} \times \frac{100}{5}$$

$$= \frac{100}{5} = 20\%$$
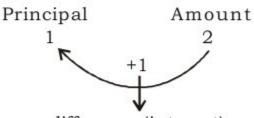
Case (ii)

Principal   Amount
1   3
+2
difference (interest)

Required Rate %

$$= \frac{2}{1} \times \frac{100}{12} = \frac{50}{3} = \mathbf{16\frac{2}{3}\%}$$

Hence, Lower Rate % = $\mathbf{16\frac{2}{3}\%}$

41. (d) According to the question,

Principal   Amount
1   2
+1
difference (interest)

Rate % = 15%

$$Required\ time = \frac{1}{1} \times \frac{100}{15} = \frac{20}{3}$$

$$= \mathbf{6\frac{2}{3}\ years}$$

42. (a) Let the first part = ₹ x
∴ Hence second part
= ₹ $(12000 - x)$
According to the question,

$$\frac{x \times 12 \times 3}{100} = \frac{(12000 - x) \times 9 \times 16}{2 \times 100}$$

$36x = 72\ (12000 - x)$
$x = 24000 - 2x$
$3x = 24000$
$x = ₹\ 8000$
Ist part = ₹ 8000
IInd part = ₹ (12000 – 8000) = ₹ 4000
Hence maximum part = ₹ 8000

Alternate

Note:- In such type of questions to save your valuable time follow the given below method.
Let two parts are P_1 and P_2 respectively.
According to the question,

$$P_1 \times \frac{36}{100} \times 1 = P_2 \times \frac{9}{2} \times \frac{16}{100} \times 1$$

$P_1 \times 4 = 8\ P_2$
$P_1 = 2\ P_2$

$$\frac{P_1}{P_2} = \frac{2}{1} \Rightarrow P_1 : P_2 = 2:1$$

Hence greater part

$$= \frac{12000}{(2+1)} \times 2 = \mathbf{₹\ 8000}$$

43. (c) Remaining amount
= 50,000 – (8000 + 24000)
= ₹ 18000
Let rate of interest = R%
According to the question,

$$\frac{8000}{100} \times \frac{11}{2} \times 1 + \frac{24000 \times 6}{100} \times 1 +$$

$$\frac{18000 \times R}{100} = 3680$$

$$\frac{44000}{100} + \frac{144000}{100} + \frac{18000R}{100} = 3680$$

$$\frac{188000}{100} + \frac{18000R}{100} = 3680$$

$$\frac{18000R}{100} = 3680 - 1880$$

$180R = 1800$
$R = 10\%$
Hence, Required Rate % = 10%

44. (b)

Principal   Interest
4P   P

time = Rate%   (Given)
Now by using formula,

$$P = \frac{4P \times R \times R}{100} \Rightarrow R^2 = \frac{100}{4}$$

$$R = \frac{10}{2} \Rightarrow R = \mathbf{5\%}$$

45. (c) Total interest rate for
$x = 7.5 \times 4 = 30\%$
Total interest rate for
$y = 7.5 \times 5 = 37.5\%$
Difference in rates = (37.5 – 30)%
= 7.5%
According to the question,
7.5% of sum = 10

$$1\%\ of\ sum = \frac{150}{7.5}$$

Individual sum

$$= \frac{150}{7.5} \times 100 = \mathbf{₹\ 2000}$$

Hence Required sum = ₹ **2000**

46. (a) In two years extra rate%
= 3 × 2 = 6%
Extra amount = ₹ 72   (Given)
According to the question,
6% of sum = ₹ 72

$$1\%\ of\ sum = ₹\ \frac{72}{6}$$

$$Sum = \frac{72}{6} \times 100 = ₹\ \mathbf{1200}$$

Hence required sum = ₹ **1200**

47. (d) Let the Rate % = R
According to the question,

$$\frac{5000 \times 2 \times R}{100} + \frac{3000 \times 4 \times R}{100} = 2200$$

$100R + 120R = 2200$
$220R = 2200$
$R = 10\%$
Hence required rate % = 10%

48. (a) By using formula,
Installment

$$= \frac{6450 \times 100}{4 \times 100 + (3+2+1) \times 5}$$

$$= \frac{6450 \times 100}{4 \times 100 + (3+2+1) \times 5} = \frac{6450 \times 100}{430}$$

Installment = ₹ 1500
Hence value of installment
= ₹ 1500

Note:- We have explained formula in previous questions.

49. (c) $16\dfrac{2}{3}\% = \dfrac{1 \to \text{Interest}}{6 \to \text{Principal}}$

Let principal = 6
    Interest = 6
Let time = t years
By using formula

$6 = \dfrac{6 \times 50 \times t}{3 \times 100} \Rightarrow t = $ **6 years**

Alternate

   Note:- In such type of questions to save your valuable time think like the given way.

Rate% $= 16\dfrac{2}{3}\% = \dfrac{1 \to \text{Interest}}{6 \to \text{Principal}}$

Represents for 1 years
According to the question,
Principal = interest
6 = 1 × 6
Hence time = 1 × 6 = **6 years**
   Note: If interest will be six times then time will also be six times.

50. (b) Let the difference between Rates = d%

∴ 2d% According to the question,
Amount of 2d% = 2.5

$d = \dfrac{2.50}{500} \times \dfrac{100}{2} = $ **0.25%**

51. (d) More interest paid in 3 years
= 2.5 × 3 = 7.5%
According to the question,
7.5% of sum = ₹ 540

1% of sum = ₹ $\dfrac{540}{7.5}$
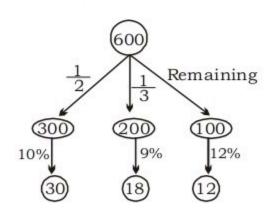
Sum = $\dfrac{540}{7.5} \times 100 = $ **₹ 7200**

52. (a) More interest paid in 2 years
= 2 × 1 = 2%
According to the question,
2% of sum = ₹ 24

1% of sum = ₹ $\dfrac{24}{2}$

Total sum = ₹ $\dfrac{24}{2} \times 100 = $ **₹ 1200**

53. (b) Let the total capital = ₹ 600
According to the question,

Total interest = (30 + 18 + 12)
= Rs. 60

Required rate % = $\dfrac{60}{600} \times 100$
= 10%

Alternate

Let the total amount = ₹ 6
Total average rate of interest

$= \dfrac{(3 \times 10\%) + (2 \times 9\%) + (1 \times 12\%)}{6}$

$= \dfrac{(30 + 18 + 12)}{6}\% = 10\%$

54. (c)

Rate% $= \dfrac{156}{800} \times \dfrac{100}{3} = \dfrac{52}{8} = \dfrac{13}{2}\%$

Increased in Rates $= \left(\dfrac{13}{2} + 4\right)\%$
= 10.5%

New interest $= \dfrac{800 \times 10.5 \times 3}{100} = $ ₹ 252

Hence, amount = ₹ (800 + 252)
= **₹ 1052**

Alternate
Note: In such type of questions to save your valuable time follow the given below method.
Increased in Rates = 4 × 3 = 12%
Hence increased in amount

$= 800 \times \dfrac{12}{100} = $ ₹ 96

Hence total amount
= (96 + 956) = ₹ 1052
Hence, Required amount = **₹ 1052**

55. (b) According to the question,
Principal   Interest
   10   3
Rate% = 10%

Time $= \dfrac{3}{10} \times \dfrac{100}{10} = $ 3 years

56. (c) Let the amount invested = Rs. P
According to the question,

$P + \dfrac{P \times 10 \times 4}{100} = 770$

$P + \dfrac{4P}{10} = 770$

$\dfrac{14P}{10} = 770 \Rightarrow P = \dfrac{770 \times 10}{14} = $ **₹ 550**

Hence, Required invested amount
= **₹ 550**

Alternate

$10\% = \dfrac{1 \to \text{Interest}}{10 \to \text{Principal}}$

Interest in 4 years = 1 × 4 = 4
Amount = (interest + principal)
= 4 + 10 = 14
According to the question,
14 units = 770

1 unit $= \dfrac{770}{14}$

10 units $= \dfrac{770}{14} \times 10 = $ ₹ 550

The amount invested = ₹ 550

57. (b) Rate % = 12%,
   Principal = ₹ 1860
   Amount = ₹ 2641.20
   Interest = ₹ (2641.20 – 1860)
= ₹ 781.20
By using formula,
Required time

$= \dfrac{781.20 \times 100}{1860 \times 12} = 3\dfrac{1}{2}$ **yrs**

58. (b) $20\% = \dfrac{1}{5} = \dfrac{1 \text{ decrease}}{5 \text{ Initial}}$

Hence, population after two years = ₹ 6400

59. (b) Let the capital = ₹ P
   and Rate % = R%
According to the question,

$\dfrac{P \times R \times 1}{100} = \dfrac{P \times 5 \times 2}{100} = R = $ **10%**

60. (d) Principal   Amount

Required rate of interest

$= \dfrac{2}{10} \times \dfrac{100}{1} = 20\%$

61. (a) Let two parts are P_1 and P_2 respectively,

According to the question,

$$\frac{P_1 \times 3 \times 12}{100} = \frac{P_2 \times 9 \times 16}{2 \times 100}$$

$36 P_1 = 72 P_2$

$$\frac{P_1}{P_2} = \frac{72}{36} = \frac{2}{1}$$

P1 : P2 = 2 : 1

Hence, required ratio = **2 : 1**

62. (c) Capital after paying income tax

$\Rightarrow$ 4% – 3.75%

.25% = 48

$$100\% = \frac{48}{.25} \times 100 = 19200$$

$\Rightarrow$ Capital without paying Income tax

19200 = Capital × 96%

Net Capital = 20000

63. (d) Total profit $= \dfrac{20000 \times 10 \times 1}{100}$

= ₹ 2000

According to the question,

Case (I): Interest $= \dfrac{12000 \times 8 \times 1}{100}$

= ₹960

Remaining interest (profit)

= (2000 – 960) = ₹ 1040

Remaining principal

= (20000–12000) = ₹ 8000

Required Rate% $= \dfrac{1040}{8000} \times 100$

= 13%

Alternate

Total money = ₹ 20000

I	:	II
12000	:	8000
3	:	2

Let the second part will be given at R% rate of interest

$\Rightarrow$ We know that

Total average rate of interest

$\Rightarrow \dfrac{(3 \times 8)\% + (2 \times R)\%}{3+2} = 10\%$

$\Rightarrow$ 24% + 2R = 50%

$\Rightarrow$ 2R = 26%

$\Rightarrow$ R = 13%

64. (b) Principal = ₹ 12000,
Rate % = 10%

Interest paid by the person in 5 years

$= \dfrac{12000 \times 10 \times 5}{100}$ = ₹ 6000
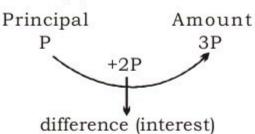
Interest received by the person after 3 years

= ₹ (6000 – 3320) = ₹ 2680

By using formula,

Rate% $= \dfrac{2680}{12000} \times \dfrac{100}{3} = \dfrac{67}{9} = 7\dfrac{4}{9}\%$

Hence required Rate% = $7\dfrac{4}{9}\%$

65. (d) **Case(I):**

Principal   Amount
P   3P

     +2P

difference (interest)

Required Rate% $= \dfrac{2P}{P} \times \dfrac{100}{8} = 25\%$

Case(II): Principal   Amount
P   4P

     +3P

$3P = \dfrac{P \times 25 \times t}{100}$
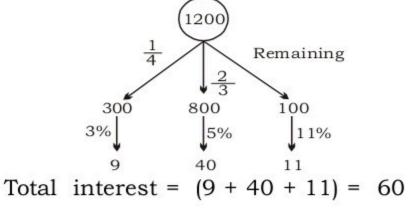
Required time = 12 years

Alternate

Note:- In such type of questions to save your valuable time follow the given below method.

Principal Amount Interest Year (Time)

P   3P $\xrightarrow{\text{diff.}}$ 2P   8   ×1.5

P   4P $\xrightarrow{\text{diff.}}$ 3P   12 ×1.5

Hence, Required time = 12 years

66. (b) Let total capital = 1200 units
According to the question,

(1200)

$\frac{1}{4}$ $\frac{2}{3}$ Remaining

300   800   100
3%   5%   11%
9   40   11

Total interest = (9 + 40 + 11) = 60

Required rate% $= \dfrac{60}{1200} \times 100 = 5\%$

Alternate

Let the total amount = 12
Total average rate of interest

$= \dfrac{(3 \times 3)\% + (8 \times 5)\% + (1 \times 11)}{12}\%$
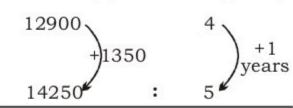
= **5%**

67. (c) Total interest in 365 days
= 365 × 2 = ₹ 730

By using formula,

Sum $= \dfrac{730}{5 \times 1} \times 100$ = ₹ 14600

Hence required sum = ₹ 14600

68. (c)   **Amount (₹)**   **: Time (years)**

12900   4
     +1350   +1 years
14250   :   5

Interest paid by the person in 1 year = ₹ 1350

Interest paid by the person in 4 years

= ₹ 1350 × 4 = ₹ 5400

Principal = ₹ (12900–5400)

= ₹ 7500

Rate % $= \dfrac{1350}{7500} \times 100 = 18\%$

69. (b) Let Rate of Interest = R%
According to the question,

$\dfrac{500 \times 4 \times R}{100} + \dfrac{600 \times 3 \times R}{100} = 190$

20R + 18R = 190

38R = 190

R = 5%

Hence, Required Rate % = 5%

Alternate

Note: In such type of questions to save your valuable time follow the given below method.

Let Rate of interest = 1%

Case(I): Interest $(I_1) = \dfrac{500 \times 4 \times 1}{100} = 20$

Case(II): Interest $(I_2) = \dfrac{600 \times 3 \times 1}{100} = 18$

According to the question,

Interest	Rate%
38	1
×5	×5
190	5%

Hence required Rate% = 5%

70. (a) According to the question,

$$\frac{4000 \times 3 \times x}{100} = \frac{5000 \times 12 \times 2}{100}$$

$12000x = 120000$

$x = 10\%$

71. (d) Let the time is 't' years and the rate of interest is R%.
According to the question,

Case (I): $y = \dfrac{x \times R \times t}{100}$ ......(i)

Case (II): $z = \dfrac{y \times R \times t}{100}$ ......(ii)

By dividng equation (i) by equation (ii)

$\dfrac{y}{z} = \dfrac{x \times R \times t}{y \times R \times t} \Rightarrow y^2 = zx$

72. (d) **Note:-** For detailed explanation of such type of questions follow the solution of previous questions.
Increased in rates in 4 years
$= 1 \times 4 = 4\%$

Hence, interest $= \dfrac{2400 \times 4}{100} = ₹96$

Total amount after 4 years
$= ₹(3264 + 96) = ₹3360$

73. (c) Let the money borrowed by Nitin $= ₹P$
According to the question,

$\dfrac{P \times 6 \times 3}{100} + \dfrac{P \times 9 \times 5}{100} + \dfrac{P \times 13 \times 3}{100}$

$= ₹8160$

$\dfrac{18P}{100} + \dfrac{45P}{100} + \dfrac{39P}{100} = ₹8160$

$\dfrac{102P}{100} = ₹8160$

$\Rightarrow P = ₹\dfrac{8160 \times 100}{102} = ₹8000$

Alternate

Note:- In such type of questions to save your valuable time follow the given below method.
Let principal $= ₹100$
Total interest

$= \dfrac{100 \times 6 \times 3}{100} + \dfrac{100 \times 9 \times 5}{100} + \dfrac{100 \times 13 \times 3}{100}$

$= 18 + 45 + 39 = 102$ units
According to the question,
102 units $= ₹8160$

1 unit $= ₹\dfrac{8160}{102} = ₹80$

100 units $= ₹8000$
Hence sum $= ₹8000$

Alternate
Total rate of Interest in 11 years
$= (6 \times 3)\% + (5 \times 9)\% + (3 \times 13)\%$
$102\% = 8160$
$100\% = 8000$
$\therefore$ Sum $= ₹8000$

74. (c) Let sum $= 100$ units
Total interest

$= \dfrac{100 \times 7 \times 4}{100} + \dfrac{100 \times 5 \times 4}{100}$

$= 28 + 20 = 48$ units
According to the question,
48 units $= ₹960$

1 unit $= ₹\dfrac{960}{48} = ₹20$

100 units $= ₹20 \times 100 = ₹2000$
Total sum $= ₹2000$

Alternate
Total rate of interest he gained
$\Rightarrow (7 + 5) \times 4\%$
$\Rightarrow 48\% = 960$ (given)
$\Rightarrow 100\% = 2000$
$\therefore$ total sum $= 2000$

75. (a) Let time $= t$ years
According to the question,

$\dfrac{8000 \times 3 \times t}{100} = \dfrac{6000 \times 5 \times 4}{100}$

$240 t = 1200$
$t = 5$ years
Hence required time $= 5$ years

76. (a) **Note:-** For detailed explanation of such type of questions follow the solution of previous question,
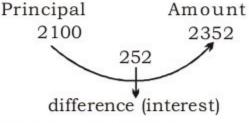Increased interest in 3 years $= 3 \times 3 = 9\%$
Hence, increased amount

$= \dfrac{800 \times 9}{100} = ₹72$

Total amount $= (920 + 72) = ₹\ \mathbf{992}$

77. (a) According to the question,

Principal   Amount
2100   2352
     252

difference (interest)
Time $= 2$ years,
Let Rate $= R\%$

$R = \dfrac{252}{2100} \times \dfrac{100}{2} = 6\%$

New rate of interest $= (6-1) = 5\%$

New interest $= \dfrac{2100 \times 5 \times 2}{100} = ₹210$

Hence Required interest $= ₹210$

78. (d) Difference between their rates he gained from both boys
$\Rightarrow 15 \times 5\% - 12 \times 4\%$
$\Rightarrow 75\% - 48\%$
$\Rightarrow 27\% = 1350$ (Given)
$\Rightarrow 100\% = ₹5000$

79. (d) Let Principal $= ₹P$
Amount $= ₹2P$
Simple Interest $= 2P - P = ₹P$

Using formula $\boxed{SI = \dfrac{P \times R \times T}{100}}$

$P = \dfrac{P \times T \times R}{100}$, $P = \dfrac{P \times 25 \times T}{4 \times 100}$

$400 = 25 T = T = \dfrac{400}{25}$

Time = 16 Years

80. (b)

2 years   5 years
PA → 720 → Rs.1020
←— 300 —→

$\Rightarrow$ According to figure
$\Rightarrow$ SI for 5 years $= ₹300$
$\Rightarrow$ SI for 1 years $= ₹60$
$\Rightarrow$ SI for 2 year $= 60 \times 2 = 120$
$\Rightarrow$ Principal amount $=$ Amount after 2 years $-$ 2 years SI $= 720 - 120$
$\Rightarrow$ Principal amount $= ₹600$

81. (d) According to the question,

$\dfrac{3000 \times 5 \times R}{100 \times 2} - \dfrac{2000 \times 5 \times R}{100 \times 2} = 125$

$\dfrac{1}{200}[15000R - 10000R] = 125$

$\dfrac{5000R}{200} = 125 \Rightarrow R = \mathbf{5\%}$

82. (d) ATQ $= \dfrac{8}{25} \begin{array}{l} \leftarrow S \cdot I \\ \leftarrow SUM \end{array}$

Time $= \dfrac{R}{2}$, Rate $= R$

Now $8 = \dfrac{25 \times R \times R}{100 \times 2}$

$= \left[S \cdot I = \dfrac{P \cdot R \cdot T}{100} \right]$

$8 = \dfrac{R^2}{4 \times 2} \Rightarrow 64 = R^2$

$R = 8\%$

83. (d) According to the Question.

A   B   C

$$A+\left(\frac{A\times5\times2}{100}\right)=B+\left(\frac{B\times5\times3}{100}\right)=C+\left(\frac{C\times5\times4}{100}\right)$$

110A =   115B =   120C

22A =   23B =   24C

Ratio of Amount (By using L.C.M of 22,23 and24)

276 : 264 : 253

A's loan = $\frac{276}{793}\times 7930 =$ **2760**

84. (c) According to the question,

Interest = 1 ₹ per day

∴ Interest in one year

= 1 × 365 = ₹365

∴ S.I. = $\frac{P\times R\times T}{100}$

$365 = \frac{P\times 5\times 1}{100}$

$P = \frac{365\times100}{5} = 73\times100$

= ₹ 7300

85. (a) According to the question,

Let Principal = ₹ x

Amount = ₹ $4x$

Interest = $4x - x$ = ₹ $3x$

∴ S.I = $\frac{P\times R\times T}{100}$

$3x = \frac{x\times15\times T}{100}$

300 = 15T = T = 20 years.

86. (c) According to the question,

Amount = ₹ 3144.

Rate = 8%

Let, Principal = ₹ x

Time

$= \dfrac{30+29+31+30+31+30+31+7}{366}$

$= \dfrac{219}{366}$

∴ SI = $\dfrac{P\times R\times T}{100}$

$3144 - x = \dfrac{x\times8\times219}{100\times366}$ = ₹ 3000

87. (c) Total price of T.V = ₹ 16000

⇒ Initial Payment = ₹4000

⇒ Remaining amount = ₹ 12000

⇒ Simple interest in 15 months for ₹12000

⇒ **S.I = $\dfrac{P\times R\times T}{100}$**

⇒ S.I = $\dfrac{12000\times12\times15}{100\times12}$

⇒ S.I = ₹ 1800

⇒ With S.I, total amount to be paid for principal Amount ₹12000

= ₹(12000 + 1800) = ₹13800

⇒ Therefore, total amount he pays for the T.V. is

= 4000 + 13800 = ₹ 17800

88. (a) $\dfrac{P}{S.I} = \dfrac{10}{3}$

Let Principal = 10
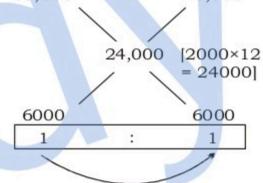
S. I for 5 years = 3

S. I for 1 years = 0.6

Rate = $\dfrac{SI}{Principal}\times 100$

$= \dfrac{0.6}{10}\times100 = 6\%$

89. (d)

10% of ₹3 lacs 30,000   6% of ₹3 lacs 18,000

24,000 [2000×12 = 24000]

6000   6000

| 1 | : | 1 |

Diff. = 0

So amount deposited

= 1,50,000 each

and difference = 0

90. (b) Sum of the 12 years age

= ₹ 100,000

Sum of the 18 years age

⇒ P + $\dfrac{P\times R\times T}{100}$

⇒ 100,000 + $\dfrac{100,000\times6\times6}{100}$

⇒ 100,000 + 36000

⇒ 136,000

Total expenses

⇒ 2500 + 500 = 3000 /year

Total expenses (6 years)

= 3000 × 6 = ₹ 18,000

Amount attained

⇒ 136,000 − 18,000 = 1,18000

91. (a) No. of days = 26 + 28 + 31 + 30 + 30 + 31 = 146 days

SI = $\dfrac{P\times T\times R}{100}$ = $\dfrac{36000\times9.5\times146}{100\times365}$

= ₹ 1368

92. (a) Rate = 5% $3\frac{1}{2}$%

Increase by $1\frac{1}{2}$%

$1\frac{1}{2}\% = 105$

Sum = 100 %

$= 105\times\dfrac{2}{3}\times100$

= **₹ 7,000**

93. (c) Time = 18 + 28 + 31 + 30 + 31 + 8 = 146 days

Simple interest

$= \dfrac{12,000\times146\times15}{365\times100}$

Simple interest = ₹ 720

Amount = ₹ (12,000 + 720)

= ₹ 12,720

94. (b) $\dfrac{x\times(r+3)\times t}{100} - \dfrac{x\times r\times t}{100} = 300$

$\dfrac{xrt+3xt-xrt}{100} = 300$

[time = 2 years]

3 × x × 2 = 300 × 100

$x = \dfrac{300\times100}{6}$

x = ₹ 5,000

value of 4x = 4 × 5,000

= ₹ 20,000

95. (a) Simple Interest for one year

$= \dfrac{240}{3}$ = ₹ 80

Simple Interest for two year

= 80 × 2

= ₹160

Difference for 2 year

= 170 − 160

= ₹10

Rate % = $\dfrac{10}{80}\times100$

$= 12\frac{1}{2}\%$

96. (a) $P + S.I. = \dfrac{P \times R \times T}{100} + P$

$2200 = \dfrac{P \times 5 \times T}{100} + P$

$2200 \times 100 = 5PT + 100P$ ....(i)

$2320 = \dfrac{P \times 8 \times T}{100} + P$

$2320 \times 100 = 8PT + 100P$

$2320 \times 100 = 3PT + 5PT + 100P$
...(ii)

Value of eq. (i) put in eq. (ii)

$2320 \times 100 = 3PT + 2200 \times 100$

$3PT = 120 \times 100$

$PT = 4000$

Value of PT in eq. (i)

$2200 \times 100 = 5 \times 4000 + 100P$

$220000 - 20000 = 100P$

$P = \dfrac{200000}{100}$

$P = ₹\ 2,000$

$200 = \dfrac{2000 \times 5 \times T}{100}$

$T = \dfrac{200}{100} = 2$ years.

Alternate

$(8 - 5)\% = 2320 - 2200$

$3\% = 120$

$1\% = 40$

$5\% = 200$

Principal $= 2200 - 200 = ₹\ 2,000$

$S.I. = \dfrac{P \times R \times T}{100}$

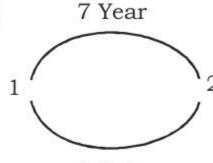$200 = \dfrac{2000 \times 5 \times T}{100}$

$T = \dfrac{200}{100} = 2$ years

97. (a) Let principal is P
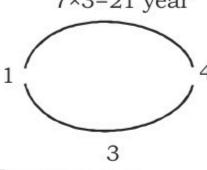
then $300 = \dfrac{P \times 3 \times 2}{100}$

$P = 5000$

98. (d) Amount Interest

$100 \longrightarrow 10$

$90 \longrightarrow \dfrac{10}{90} \times 100 = 11\dfrac{1}{9}\%$

99. (c)   7 Year

1 ——— 2

1 Extra
$7 \times 3 = 21$ year

1 ——— 4

3

100. (b) Let sum $= x$

Interest $= \dfrac{3}{4}x$

Interest $= \dfrac{PRT}{100}$

$\dfrac{3}{4}x = \dfrac{x \times R \times 12.5}{100}$

$R = 6\%$

101. (a) R = 12%, T = 6 year 8 month

$6\dfrac{8}{12} \Rightarrow 6\dfrac{2}{3} = \dfrac{20}{3}$

Interest $= \dfrac{PRT}{100}$

$720 = \dfrac{P \times 12 \times 20}{100 \times 3}$

$P = ₹\ 900$

102. (c) Total percentage discount applicable

$= 2\dfrac{1}{4} \times 2\dfrac{2}{3}\% = 6\%$

6% of principal $= ₹\ 78$

Principal $= ₹\ 1300$

Required sum $= 1300 + 78$
$= ₹\ 1378$

103. (c) t = 1 month $= \dfrac{1}{12}$ year,

SI = 1 paisa $= ₹\ \dfrac{1}{100}$

$r\% = \dfrac{SI \times 100}{P \times T} = \dfrac{1 \times 100 \times 12}{100 \times 1 \times 1}$

$r\% = 12\%$

104. (a) Let the ratio of Interest is x%

$\dfrac{400 \times x \times 3}{100} + \dfrac{500 \times x + 4}{100} = 160$

$12x + 20x = 160$

$32x = 160$

$\boxed{x = 5}$

The rate of interest is 5%

105. (b) Case-I

$SI\% = R\% \times t$

$SI\% = 5\% \times 8$

$= 40\%$

Case II

$SI\% = 5 \times r\%$

According to the question

$40\% = 5 \times r\%$

$r\% = 8\%$

106. (d) Money is double of Itself means interest is equal to money

$P = \dfrac{P \times 8 \times r}{100}$

$r = \dfrac{100}{8}$

$r = 12\dfrac{1}{2}\%$

107. (c) Let principal and S.I. is 10x, 3x and time is t

then,

$3x = \dfrac{10x \times 6 \times t}{100}$

$t = 5\ years$

108. (b) According to question,

$SI = \dfrac{P \times R \times T}{100}$

$R = \dfrac{P \times R \times 2}{100}$

$\mathbf{P = 50}$

109. (a) $SI = \dfrac{P \times r \times t}{100}$

According to question,

$60 = \dfrac{P \times 6 \times 5}{100}$

$\dfrac{60 \times 100}{6 \times 5} = P$

$P = 200$

110. (c) Let P = x
A = 2x
SI = x

Time = $16\frac{2}{3}$ = $\frac{50}{3}$ years

SI = $\frac{PRT}{100}$

x = $\frac{x \times R \times 50}{300}$

R = 6%

111. (b) By using formula

$\frac{3000 \times 12 \times T}{100}$ = 1080

T = $\frac{108}{36}$ = 3 years

112. (c) 2 years

P ⌢ 5182 1 years 5832
⌣ 3 years

1 years SI = 650
2 years SI = 1300
P = 5182 – 1300
⇒ 3882

113. (a) Let after t year, will be equal
So, A = B

P + $\frac{Q \times x \times t}{100}$ = Q + $\frac{Q \times y \times t}{100}$

P – Q = $\frac{t}{100}$ (Qy – Px)

t = $100\left(\frac{Q-P}{Px-Qy}\right)$ year

114. (a) SI of 2.5 year
= 5500 – 4000 = 1500

SI of 2 year = $\frac{1500}{2.5}$ ×2 = 1200

So, Principal = 4000 – 2yearSI
= 4000 – 1200 = 2800

r% = $\frac{1200}{2800 \times 2}$ ×100 = $21\frac{3}{7}$%

115. (b) Let Ram get ₹ x and Shyam get (260200 – x) ₹
then Amount get by Ram after 3 years

= x × $\left(1+\frac{4}{100}\right)^3$

and Amount get by Shyam after 6 years

= (260200 – x) $\left(1+\frac{4}{100}\right)^6$

But both get equal amount

x$\left(1+\frac{4}{100}\right)^3$ = (260200 – x)$\left(1+\frac{4}{100}\right)^6$

$\frac{x}{2600200-x}$ = $\frac{17576}{15625}$

15625x = 4573275200 – 17576x
33201 x = 4573275200

$\boxed{x = 137745.022}$

So, Ram will get ₹ 137745.022

116. (c) Average interest rate is

= $\frac{352}{4000}$ ×100

= 8.8%

Ist   2nd
8%   10%
        8.8%
1.2 : 08
3   : 2
(3+2) → 4000
5 → 4000
1 → 800
3 → 800 × 3 = ₹ 2400